THE BALTIMORE CITY COUNCIL & BALTIMORE CITY GREEN BUILDING TASK FORCE

COUNCILMAN JAMES B. KRAFT &
THE BALTIMORE REGIONAL CHAPTER OF THE
U.S. GREEN BUILDING COUNCIL

THE BALTIMORE CITY GREEN BUILDING TASK FORCE REPORT ON SUSTAINABLE BUILDING GUIDELINES AND STANDARDS FOR PUBLIC AND PRIVATE CONSTRUCTION AND RENOVATION PROJECTS

APRIL 2006

MEMBERS OF THE GREEN BUILDING TASK FORCE

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Baltimore Regional Chapter – U.S. Green Building Council

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Staff

Billy Hwang
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Office of Councilman James B. Kraft

Taylor Henderson
Intern
Office of Councilman James B. Kraft
Spring 2005

Douglas Nivens II, Christopher Morley
Interns
Office of Councilman James B. Kraft
Summer 2005

Sarah Brannen, Ben Duda
Legislative Assistants,
Office of Councilman James B. Kraft
2006

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M. Courtnay Barranco

Paul Bassett

Dante Beretta

Buddy Bohager

Lindsey Bramwell, Owner, Green Pig

Jeff Britt, EP Henry

Claire Broido, sunedison LLC

David Brosch, Department of Housing and Community Development

Gwen Brown

Bibi Hidalgo Caporizzo, Citizens Planning and Housing Association

M. P. Carter

Marvin L. "Doc" Cheatham, NAACP, Baltimore Chapter

Lou Clark

Andrea Claypoole

Todd Connelly, Patterson Park Community Development Corporation

Wendy Cooper, Green Building Consultant

Julia Craighill, Streuver Bros. Eccles and Rouse

Amanda Cunningham, Parks and People Foundation

Jack Danna, Pigtown Mainstreets

Paul Dibos, Hord Coplan Macht

Beverly Eisenberg

Lisa Ferretto, Hord Coplan Macht

Neal Fiorelli

Mitch Fischler, Lorax

Arlene B. Fisher

Brent Flickinger

Barker French

George Friday

Brian Funk

Michael Furbish

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Kimberley Grace, Stonington Partners

Guy Hager, Parks and People Foundation

Al Hicks

Fife Hubbard

Samuel Hudnet

Kay Kodak

Lowell Larson, New Greenmount West Community Assn., Inc.

Keith Lasoya, Chesapeake Sustainable Business Allicance

Dennis Livingston, New Greenmount West Community Association, ACORN

Frank Lee

Tom Liebel

Tara Lobosky

Tammy Mayer

Sean McGuire

Jeromy McKim, Patterson Park Community Development Corporation

Krista McKim

Sandy McLelland-Hennessey

Emma Middleton

David Mitchell

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Pam Negrin

Ruth Newell, New Millennium Development

Roland Oehme, Green Harmony Design

Addison Palmer

Frank Patinella, Reservoir Hill Improvement Council

Kimberly Petry

Stacy Prather

Inez Robb

Mary Roby, Herring Run Watershed Association

Jeff Roth

Ted Rouse, Chesapeake Sustainable Business Alliance

Jake Ruppert, Ruppert Homes, Inc.

Michael Sarbanes, Citizens Planning and Housing Association

Catherine Schattenfield

Carol Schreter

Ted Scott

Stan Sersen

Ann Sherill

Jay Nole Schlossberg-Cohen

Carol Silldorff

Gary Skulnik, The Clean Energy Partnership

Lou Takacs, Washington Village/Pigtown Neighborhood Planning Council

Jill Trufant

Cheryl Wade, Mill Valley Garden Center, Inc.

Cecelia Walkes

Renee Willis

Vicki Worden, Green Building Initiative

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EXECUTIVE SUMMARY

This report is published by the Baltimore City Green Building Task Force (GBTF) and submitted to the Baltimore City Council in March 2006.

The Task Force believes that Baltimore City, the taxpayers, residents and visitors will greatly benefit by the implementation of a Green Building program and the adoption of LEED as the primary standard for commercial projects. More specifically, our research has shown that a Green Building program can:

- Improve work and learning environments, thus increasing worker productivity and student performance;
- Mitigate health risks such as asthma and childhood lead poisoning;
- Create local green building jobs within the construction sector;
- Reduce energy consumption and costs;
- Affirm the City's commitment to environmental conservation.

To these ends, the Task Force recommends a two-phase implementation strategy for Green Building in Baltimore City. Both phases include applications for public and private sector development. Phase I, which will start in fiscal year 2007, focuses on developing and green buildings in the public and private sectors. Phase II, which will start in fiscal year 2008, focuses on broader based initiatives to develop sustainable communities. Within each Phase, the Task Force identifies primary goals, the applications of each, and outlines a proposed implementation plan for each. They are summarized as follows:

Phase I – Green Building Programs

Public Sector Work

Goal

To develop and implement green building standards for public sector projects of the Baltimore City government, that will include the use of sustainable development, design and construction practices, energy efficiency measures and pollution preventing practices in public funded and financed Capital Improvement Projects (CIP)

Recommendations

1. Create a Baltimore City "Office of Sustainability" to guide, train, implement and develop details of the Baltimore City Green Building Program and future City Sustainability Initiatives.

2. Require LEED Silver Rating for all adopted CIP new construction and major renovation projects over 10,000 gross square feet (GSF).
3. Require Green Building Guidelines for Minor City Projects with a minimum cost of $25,000.
4. Develop Green Building Guidelines for any project that receives a minimum of 5% NPV city funding or financing support.

Private Sector Incentive Program

Goal

To promote private sector green development and construction through a menu of incentives, training opportunities and educational outreach available to developers, builders, neighborhood associations and the general public.

Recommendations

1. Create a variety of developer incentives for green development.
2. Establish Green Zones, overlay incentive districts to promote green development and economic activity in two areas of the city initially and then expanding to other areas.

Develop a City-wide Green and Healthy Housing Program

Goal

To promote public sector housing first then expand to private sector green development and construction through a menu of incentives, training opportunities and educational outreach available to developers, builders, neighborhood associations and the general public.

Recommendations

1. Stabilize and improve public housing stock and interior residential environments for existing and new houses and multifamily, and green residential demolition work.
2. Create economic opportunities through the Green and Healthy Housing Program, through job training, by encouraging new businesses and attracting customers while building capacity to meet the needs outlined in recommendation 1.

Phase II – Sustainable Communities

Phase II is a continuation of Phase I. It will require: a longer timeframe; working with larger constituencies; and greater support from city agencies, the non-profit and business community and the citizens of Baltimore City. Therefore, this report simply outlines the issues to be addressed in this phase. The Sustainable Communities sub-committee of the Task Force will continue to work on these issues during the implementation of Phase I.

Issues to be Addressed

Sustainable Sites

Utilize sites to capture environmental benefits and preserve or create new open space.

Water Conservation

Develop programs and policy to conserve potable water use, improve stormwater management and "green" the city sewage waste water system

Green Transportation

Address city and regional transportation issues by encouraging transit-oriented development, improve public transit services and reduce dependency on individual automobile use.

Energy Use and Clean Air

Implement citywide energy conservation programs and incentives, encourage use of renewable, non-fossil fuel energy sources and improve city performance on meeting regional clean air standards.

Material Resource Conservation

Promote the development of local, green manufacturing industries and the use of recycled content materials or renewable materials for building, operations, supplies for city work. Also establish more extensive recycling program to include construction and demolition waste recycling.

Sustainable Development Communities

Maintain Baltimore City's sustainable development by integrating programs, such as in workforce development, economic redevelopment, and the public school system.

BACKGROUND

The Baltimore City Green Building Task Force

Resolution Establishing the Task Force

The Baltimore City Green Building Task Force (GBTF) was established in accordance with City Council Resolution 05-0035R, "The Baltimore City Green Building Task Force" (see Appendix A). The resolution, introduced at the April 5, 2005 City Council meeting, had the following sponsors:

Member	District / Position
James B. Kraft – sponsor	1st District
Sheila Dixon – co-sponsor	Council President
Robert Curran – co-sponsor	3rd District
Kenneth Harris, Sr. – co-sponsor	4th District
Rochelle "Rikki" Spector – co-sponsor	5th District
Helen Holton – co-sponsor	8th District
Agnes Welch – co-sponsor	9th District
Edward Reisinger – co-sponsor	10th District
Keiffer Mitchell – co-sponsor	11th District
Bernard "Jack" Young – co-sponsor	12th District
Mary Pat Clarke – co-sponsor	14th District

Resolution 05-0035R was adopted on June 13, 2005 and requires the Task Force "to study the application of high-performance, sustainable guidelines and standards to public and private construction and renovation projects."

Task Force Mission

The mission of the Baltimore City Green Building Task Force is to evaluate the potential implementation of Green Building policies and the US Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) rating standards in Baltimore City. To this end, the Task Force considered:

- Goals and benchmarks for implementing green building guidelines and standards;
- Applicability to new public and private construction projects;
- Applicability to public and private renovation projects;
- Fiscal requirements and constraints;
- Incentives, such as fiscal and environmental benefits; and
- Personnel, i.e. identifying green expertise in City administration.

Task Force Methods

To meet the goals of resolution 05-0035R and achieve sustainable development in Baltimore, the Task Force gathered a diverse set of leaders from different sectors, drawing on their specific fields of expertise and knowledge of Baltimore City.

The Task Force established three committees to evaluate green building standards and develop recommendations:

- The *Research Committee* identified other cities' green building standards and the applicability of LEED standards to Baltimore City.
- The *Economics Committee* evaluated the potential costs and benefits of applying green building standards to Baltimore City.
- The *Implementation Committee* compiled this report of proposed effective means by which recommendations could be implemented in Baltimore City.

Definitions

Two terms that are used throughout this document are "green building" and "sustainability." These terms are defined below. Additional terms used in this document are defined in Appendix B.

Green Building

Green Building is a philosophy of design and construction that integrates natural resources more effectively, preserves and restores the natural and human resource base while creating healthier, more efficient "high-performance" structures, homes and communities. This philosophy incorporates the following guiding principles:

- using natural and manmade resources efficiently
- considering the impact of buildings and development projects on the local, regional and global environment
- reducing building footprint and development size
- allowing ecosystems to function naturally
- conserving and reusing water
- treating storm water on-site
- maximizing the use of local materials
- optimizing energy performance by installing energy efficient equipment and systems
- optimizing climatic conditions through site orientation and design
- integrating natural day-lighting and ventilation
- minimizing the use of mined rare metals and persistent synthetic compounds and volatile organic compounds
- minimizing construction waste by reducing, reusing and recycling materials during all phases of construction and deconstruction.

Sustainability

Sustainability is the practice of using resources to provide for the needs of today's citizens while preserving the use of those same resources for the needs of future generations. The practice of sustainability recognizes that the natural, physical (or built),

social and economic systems required to provide for human development are interconnected and require an integrated approach.

Building Codes and Certifications

Over the years the construction industry, often in conjunction with local governments, has developed building codes, also called building standards. These codes/standards compile the accumulated knowledge of tradesmen, educators, researchers, inspectors, regulators, etc. to guide and ensure the safety and integrity of buildings[1].

As building materials and our knowledge change, building codes/standards change. For example, codes developed to keep buildings safe in the event of earthquakes, fires, hurricanes, etc. are significantly different today than the codes of twenty years ago.

Certifications differ from codes in that their intent is not primarily to insure the safety of building's occupants. Rather certifications are a way to demonstrate that a structure has certain characteristics in addition to the minimum characteristics required by codes. Three certifications are described below.

LEED Green Building Rating System®

LEED[2] is a point-based rating system developed by the USGBC that establishes a national standard for measuring a buildings' or a projects' sustainability of design, construction, and operation. Points are given for green practices such as using less energy and water, using locally harvested and manufactured materials, and providing daylight and views (see Appendix C for a list of all LEED criteria). Based on a building's total number of points, it will receive one of four ratings: Certified, Silver, Gold or Platinum.

A "Silver" rating, the standard recommended in this report, requires a minimum of 33 of a total possible 69 points. There is flexibility in how any project chooses to meet the standard. Most credits are performance-based, allowing the project team various ways to earn points. The rating is an independent, consensus-based document that rigorously reviews projects and awards third party certification. As part of its flexibility, there are different LEED rating systems that suit different types of projects, including: New Construction v2.1 (NC); Core and Shell (CS), Existing Buildings (EB) and Commercial Interiors (CI).

In the United States, LEED is the most widely recognized and implemented rating and certification system for green building projects. All Maryland state owned or leased facilities larger than 7,500 gross square feet must be certified LEED Silver, and if possible, LEED Gold.[3] Over 40 cities and municipalities have adopted LEED standards in the US and LEED has certified over 55 million square feet of construction since its inception in 2000. The US General Services Administration (US GSA), as part of its

1 Two examples of standards are ASHRAE Standard 52.2-1999 -- Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size and the National Electrical Safety Code

2 "LEED" refers Leadership in Energy and Environmental Design. The US Green Building Council is the owner of the registered trademark LEED Green Building Rating System®. In this document, consistent with USGBC's usage we use LEED to refer to their rating system.

3 For more information see the Maryland Department of Environment website at http://www.dnr.state.md.us/ed

commitment to sustainable development, requires basic LEED certification of all new construction.[4] Two of these US GSA projects are near Baltimore City: the Social Security Administration Childcare and the Social Security Annex Building, both in Woodlawn, MD. The Stewart's Building, on Howard and Lexington Streets[5] is also LEED certified.

A number of cities have adopted green building policies that mandate LEED Silver certification for municipal projects, including: Seattle, WA; San Francisco, CA; San Diego, CA; Santa Monica, CA; Alameda County, CA; Berkeley, CA; Arlington, MA; Atlanta, GA; Boulder, CO; Calgary, Alberta; Dallas, TX; Houston, TX; and Kansas City, MO.

These green building trends are also impacting the private construction sector. For example, the state of Maryland offers the Green Building Tax Credit, which provides 6%-8% of total construction costs for LEED certified commercial buildings.

Green Globes™

Recently, the Canadian rating system of Green Globes was brought to the United States. It was developed by the Green Building Initiative, which was originally established to promote the National Association of Homebuilders' green building guidelines. However, Green Globes recently expanded to nonresidential uses. Green Globes is a web-based tool to guide design professionals on green building standards. Green Globes differs from LEED in several ways. For example, the LEED certification process begins by registering a project with the USGBC and then continues with documenting green building efforts throughout the project and submitting for a USGBC review for rating. Green Globes™, however, can be self-administered and does not necessarily result in certification. If certification is desired, a third party might be called upon[6]. Green Globes™ is also somewhat broader than LEED, including points for technical issues such as acoustics, integrated design, and optimal use of space. One drawback of the Green Globes™ system is that its precise requirements are not publicly available. A Green Globes™ model to assess existing buildings has not yet been licensed for use in the US.[7]

Green Communities™

Green Communities is a five-year, $555 million initiative to create more than 8,500 homes that deliver significant health, economic and environmental benefits for low-income families and communities. This effort is a partnership between Enterprise, the Natural Resources Defense Council, Global Green USA, the American Institute of Architects, the American Planning Association, Southface, the National Center for Healthy Housing and leading corporate, financial and philanthropic institutions.

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4 http://www.gsa.gov/ accessed February 15, 2006.

5 http://www.usgbc.org/LEED/Project/project_list.asp accessed February 21, 2006.

6 For a brief comparison of rating systems, see "Understanding Green Building Rating System," STRUCTURE Magazine, August 2005.

7 "Green Globes Emerges to Challenge LEED" Environmental Building News, Vol. 14. No. 3 March 2005. Available at http://www.buildinggreen.com/auth/article.cfm?fileName=140304b.xml For more information visit http://www.greenglobes.com

All Green Communities homes are built according to the Green Communities Criteria. The Criteria follow from analysis of all major green building programs and distill many aspects of green building and smart growth for affordable housing. The Green Communities Criteria apply to for-sale and rental housing; urban, suburban and rural areas; new construction and, with some modifications, substantially rehabilitated housing. These criteria are also consistent with many of the nation's 30 or more leading local green building and smart growth programs, such as Seattle's SeaGreen initiative and Portland's Office of Sustainable Development's green housing program.

The Criteria are based on and are substantially similar to LEED standards. Green Communities works closely with its partners, the USGBC and Enterprise, to ensure LEED Homes standards, currently in the pilot phase, and the LEED neighborhood development standard, under pre-pilot review, effectively apply to affordable housing.

Energy Star®

Green Building certifications, such as LEED and Green Globes™, are complementary to Energy Star® ratings; they are not mutually exclusive. Energy Star® encourages use of energy efficient appliances and products, while LEED and Green Globes™ incorporate a wider array of green standards in design, renovation, and construction that include energy efficient products. A building that meets LEED and Green Globes™ certification standards will also meet Energy Star® requirements.

Green Building in Baltimore

Baltimore's Challenge

Like many urban communities, Baltimore faces daily and long-term economic, environmental, social and quality-of-life challenges. In particular, 10.6% of all Baltimoreans and over 11% of children in Baltimore suffer from asthma. These rates exceed both the Maryland and national averages.[8] Baltimore children under the age of 6 also have the highest rate of lead poisoning and elevated blood lead levels in the state.[9] Especially for our economically disadvantaged citizens, these environmental concerns are both more serious and more costly; in Baltimore City 19.6% of residents live below the poverty line, including 26.6 % of children.[10] The Baltimore City Public School System reports that there is over $1 billion of deferred maintenance in on City school facilities for replacement of heating systems, doors, windows, and lighting. The school system and the City are attempting to address these challenges, but much remains to be done.

The costs and availability of energy, building materials, transportation as well as fuels and supplies, continue to rise and are expected to become more volatile over the next decade. Nationally, energy costs for poor families have increased much faster than their incomes in recent years. Low-income families will spend an average of $1,335 on energy

8 Baltimore City Health Status Report 2003.

9 Maryland Department of Education 2004 Annual Report

10 Census bureau estimate for 2003. Children aged 0-17 years old.

this year – nearly 17 % of their income – compared to 15 % in 1997.[11] Green housing can help lower income families by lowering their energy and water expenses.

The City faces regional issues of clean air, clean water, traffic congestion and protection of the Chesapeake Bay. While a growing population will broaden the tax base, it will also increase demand for natural resources and could negatively impact the quality of the natural environment. Baltimore faces two particular threats: 1) an increase in urban temperatures, a detrimental environmental condition know as the "Heat Island Effect"[12] and 2) the increase of impervious surfaces[13], which not only decreases park and green space, but also causes water pollution and runoff problems.

Benefits of Green Building

Green buildings can:

- Improve work and learning environments, thus increasing worker productivity and student performance;
- Mitigate environmentally related health risks, such as asthma;
- Create local green building jobs within the construction sector;
- Reduce energy consumption and costs;
- Affirm the City's commitment to environmental conservation.

Economic and Community Benefits

Studies indicate that Green Building practices can improve student performance and workers' productivity. For example, a Heschong-Mahone Group study across three cities found that students in classrooms with the greatest amount of day lighting performed nearly 20% better than those in classrooms with little daylight.[14] Additionally, a Lawrence Berkeley National Laboratory study showed increased worker productivity and health with improved indoor air quality and work environment. Specifically, the study estimated that the benefits from reducing employees' sick days, respiratory disease, allergy and asthma symptoms outweighed the costs of environmental improvement by factors of 9 to 14.[15]

Green building policies and programs potentially create jobs to serve the emerging green building industry. Often the jobs that are created are local, and stay local. Job creation and new small businesses range from unskilled to highly skilled labor needed for

[11] For more information on affordable housing and economic benefits of green building, see the Green Communities website at http://www.enterprisefoundation.org/resources/green/index.asp. Accessed February 13, 2006.

[12] A Heat Island Effect occurs when urban and suburban temperatures raise 2 to 10 degrees Fahrenheit above nearby rural areas. The elevated temperatures lead to increased peak energy demand, air conditioning costs, air pollution levels, and heat related illness and mortality. http://www.epa.gov/heatisland

[13] Impervious surfaces are "constructed surfaces- rooftops, sidewalks, roads, and parking lots- covered by impenetrable materials such as asphalt, concrete, brick, and stone. These materials seal surfaces, repel water, and prevent precipitation and meltwater from infiltrating soils." http://chesapeake.towson.edu/landscape/impervious/what_imp.asp

[14] Heschong Mahone Group, "Daylighting in Schools: An Investigation into the Relationship Between Daylight and Human Performance, 1999. Available at: http://www.h-m-g.com

[15] William Fisk, 1999: Estimates of Potential Nationwide Productivity and Health Benefits from Better Indoor Environments: An Update, Indoor Air Quality Handbook, Report number LBNL-42123 (New York: McGraw-Hill).

deconstruction companies, weatherization programs and possibly cleaner, light industrial manufacturing of green products.

Green housing uses building practices and materials that minimize moisture, provide proper ventilation, prevent pest infestation and minimize contaminants. This results in parents' and children's reduced risk for asthma and environmental hazards. Green housing can be more energy efficient than conventional homes that merely meet existing code requirements. By utilizing Energy Star® systems, appliances and fixtures, residents can save hundreds of dollars each year in utility bills. The Maryland DNR Green Building Program and the Maryland Energy Administration recently commissioned a report of the potential costs of renovating Baltimore rowhouses, "A Green Building Template, A Guide to Sustainable Design Renovating for Baltimore Rowhouses."

Energy Savings

The benefits of green building programs include an immediate reduction in energy consumption and lower operation and maintenance costs. LEED Silver Rated buildings usually consume 20% to 30% less energy than those that are designed to meet the current 2005 building and model energy codes. This is a direct translation to reducing operational energy costs by nearly one third. These benefits would result in a more efficient use of municipal tax dollars. Importantly, buildings that meet LEED Silver Rating standards meet Energy Star® requirements.

Conservation

By using fewer resources and less energy, green buildings also reduce air pollution and acid rain generation, and may even generate their own energy if photovoltaic[16] panels are installed. They can be significant water savers and capture more of the storm water run-off. Sustainable development practices also enhance existing pollution prevention programs and can help meet the city's commitment to the Chesapeake Bay Preservation Act and the Chesapeake Bay 2000 Agreement, as well as other federal and state Clean Air and Clean Water programs and regulations.

Green Building Cost Analysis

Many studies have attempted to determine the costs of adopting LEED standards. Two studies are summarized here[17]. Both examine LEED-certified buildings, one from the US General Services Administration (US GSA) and one conducted for the city of Seattle, Washington[18].

US GSA Cost Study Report

The US GSA commissioned a study that examined six scenarios each for two buildings. The report, "GSA LEED® Cost Study Final Report," noted that, "Overall, the study

16 Solar Photovoltaic (PV) are cells or panels (4'x8") that convert sunlight into direct current electricity. They use silicon as a film under a glass plate, which is then wired with a high efficiency material, such as copper, into a converter or stored in batteries.

17 The GSA report is available at http://www.wbdg.org/ccb/GSAMAN/gsaleed.pdf The City of Seattle study is available at http://www.cityofseattle.net/sustainablebuilding/Leeds/docs/LEED_CostBenefit_Report.pdf

18 The reports of both studies cautioned readers that the studies had specific project assumptions. As such, the study conclusions should not be generalized to all LEED projects.

illustrates that when GSA projects take advantage of many 'no cost' or 'low cost' credit opportunities, the overall construction cost premium [for LEED-certified projects] can be surprisingly limited, even at the higher rating levels. Under certain conditions, it is even possible for projects to show a slight cost decrease."

Seattle: Achieving Silver LEED

The City of Seattle's report, "Achieving Silver LEED: Preliminary Benefit-Cost Analysis for Two City of Seattle Facilities – Final Report," evaluated two newly constructed buildings in Seattle. The study found that the additional cost for each building, as a percentage of the project budget, was 0.7% and 1.9%. A projected cost/benefit analysis of the two buildings over a 25-year period at 2% and 6% discount rates showed that the additional investment in one building was cost effective and in the other it was not.

Conclusion

The Baltimore City Green Building Task Force believes that a green building program is the first step in putting the city on the path to a sustainable, healthy and economically bright future.

The Baltimore City Green Building Program is not intended to be limited to public projects or commercial work alone; sustainable building practices should also be implemented in the residential sector for both private homes and publicly owned city housing. In terms of health, comfort and affordability, greening the housing in the city will have a large beneficial impact on our residents and our urban environment. The Task Force recommends that these changes take place in two phases as described in the following sections. These phases include applying LEED standards, or other equivalent standards, to municipal renovations and constructions, and creating an Office of Sustainability to approve of applicable standards and oversee the green building plan adopted by the City.

The recommendations contained in this report fit firmly within the goals of the City of Baltimore Comprehensive Master Plan. The Comprehensive Master Plan includes four areas of future development: Live, Earn, Play and Learn. Within each of these, the Plan outlines a set of goals, some of which relate to the recommendations in Phase I of our report, and some of which are better suited to Phase II. The Phase I goals regarding public sector projects, private incentives and greening the housing stock should be considered in the context of the Comprehensive Master Plan goal of elevating the design and quality of the City's built environment. Many of the Phase II recommendations relate to the Comprehensive Plan goals of improving the transportation access for residents, improving access to jobs and linkages to businesses, increasing the attractiveness of Baltimore's natural resources and open spaces, and improving public school facilities. The Task Force intends to partner with other city agencies and projects to facilitate adoption of our recommendations.

PHASE I – GREEN BUILDINGS

The Task Force recommends that the City of Baltimore adopt a Sustainable Baltimore Policy, to include a green building standard. The standard adopted should define the planning, design, construction and renovation of public and private projects throughout the City. The adopted standard or equivalent program must be a nationally recognized, independent and third-party verifiable program. It is further recommended that the City develop green building guidelines to enable staff to more effectively implement the adopted policy and that an Office of Sustainability be formed to develop and administer the municipal green building program.

It is the intention of this Task Force to be able to recommend alternative rating systems for the purpose of providing choice to the City and developers. As Green Building practices become more accepted nationwide, other rating systems will likely emerge. Therefore, all references to LEED within this document should presume to refer to LEED "or other rating systems of equal efficacy."

Goal 1: Public Sector Projects and Work

The first goal is to develop and implement green building standards for public sector projects of Baltimore City. These standards will emphasize the use of sustainable development, design and construction practices, energy efficiency measures and pollution prevention practices in applicable public funded and financed Capital Improvement Projects (CIP). Furthermore, the Task Force recommends the establishment of an Office of Sustainability to help develop and direct the Baltimore City Green Building Program, and to conduct educational outreach and training programs for staff and the general public.

Recommendations

I.1.1 – Establish an Office of Sustainability

The purpose of this Office is to develop and administer the Sustainable Baltimore Initiative, which will include the Green Building Program, energy saving measures and other pollution preventing programs.

I-1.1.a Application

This newly created Office of Sustainability, should be an independent office within the Mayor's Office. It would serve as a liaison to public and private development in the City. The specific location of this office within the administration is to be determined. The Green Building Program Coordinator will implement the Green Building Program for the City, provide technical assistance, advocate for sustainability and ensure that a Green Building rating system is followed on all construction or renovation projects over 10,000 GSF.

The first two years the office will be staffed by a Coordinator and assistants. The positions may be initially funded through a grant or other donations. Once the Office accrues savings through high performing buildings and through fees or other mechanisms, the Office then can achieve a stable operating budget. The Coordinator and staff will be trained in the Rating System coordination process.

I-1.1.b – Implementation of the Recommendation

I. Find and hire the Coordinator – In keeping with Article IV Section 6(a) of the Baltimore City Charter, the Mayor will have the sole authority to hire, with City Council approval, an expert in sustainable development and government relations to develop and administer the Sustainable Baltimore Initiative. The Coordinator will further develop the City of Baltimore's Green Building Program initially and other sustainable, energy efficiency and/or pollution prevention programs thereafter.

   He/she will create the guidelines that will specify the adopted standards and define the quality control procedures to be used to develop and implement Green Building projects. The Guidelines and Standards therein will be adopted by City Council prior implementation.

II. Informational Functions -- The Office of Sustainability will also provide information and services for educating and coordinating the training of city staff, citizens and other interested parties in promoting green development in Baltimore City. The Office will secure multi-sector partnerships in order to facilitate and finance the education and staff development component of the Program, as well as selected demonstration pilot projects. An advisory committee will advise the Office of Sustainability. (Quality assurance procedures and public outreach are required by grantors). Having QAP in place ensures timeliness and affordability of environmental capital projects.

   The Office of Sustainability will arrange and coordinate education and training opportunities for city staff over a two-year period, with on-going training sessions to be offered thereafter as established by the Office of Sustainability. Initially, the Baltimore Regional Chapter of the USGBC has offered three training courses to designated individuals. Ongoing opportunities for public education and outreach will also be provided through web page development, brochures and presentations, and through tours of demonstration and pilot projects.

III. Creation of the Sustainable Baltimore Advisory Committee (SBAC)[19] – The Mayor will also appoint members to a cross functional city-wide committee consisting of representatives from the appropriate city agencies, citizens and stakeholders, the business and development community, the institutional and foundation community operating in Baltimore. The purpose of this committee is to advise the Office of Sustainability on successful implementation of the Sustainable Baltimore Initiative. Removal of committee members will follow the guidelines set forth in Article IV Section 6(d) of the City Charter.

[19] The SBAC is the Citizens Advisory Committee, previously noted:

The SBAC will host quarterly public meetings to demonstrate progress, present pilot projects, and invite public commentary. They will also function similar to other City boards and advisory groups by holding monthly executive sessions to advise the Office of Sustainability. Monthly meetings should be open to the public and invite public comments

IV. Pilot Projects -- The first three projects under the FY 2007 adopted CIP will be designated as pilot projects and guided by the Office of Sustainability. The pilot projects will serve as hands-on learning opportunities for staff to understand how to implement each phase of a green building project effectively and efficiently, and acquaint staff with the applicability and feasibility of green building standards. The Office may compile case studies on each pilot project. Projects may be conducted in partnership with other entities, such as Baltimore County Department of Education's Green Schools Program and the Green Affordable Housing Initiative being spearheaded by the Urban League, Enterprise Community Partners, and the Baltimore Neighborhood Collaborative. As with any capital project, all pilot projects should have fundraising strategy plans developed prior to implementation. The Baltimore Development Corporation or the Baltimore City Public School System are recommended agencies to start this practice. Given the USGBC fee schedule, the City of Baltimore and the USGBC should negotiate pre-approved innovation credits or leniencies to stimulate the pilot projects. (See Appendix D for the USGBC fee schedule.)

V. Integrated Design Process – Develop a plan that enables project teams to work through an "Integrated Design Process." A successful Green Building Program requires a different way of working with the project team to promote sustainable practices throughout the entire life of the project. Because of the integration of design, construction and operation in sustainable practices, other delivery methods besides "Design-Bid-Build" will need to be explored.

VI. Exemption Process – Baltimore City "Office of Sustainability" will develop an exemption process to review any project where the Green Building Guidelines are not appropriate. Documentation for exemption will be reviewed during the project's schematic design stage. Exempted projects must still incorporate appropriate sustainable building measures where possible.

Baltimore City facility construction projects that are unoccupied or serve specialized functions (e.g. pumping stations, garages, storage buildings) are not subject to the Green Building Guidelines and need not go through the exemption process

I-1.2 – LEED Silver Rating

Require USGBC LEED Silver Rating for all Adopted CIP new construction and major renovation projects over 10,000 gross square feet (GSF).

The City of Baltimore, through its various entities, is one of the city's largest owners and operators of buildings and will continue to construct and/or renovate facilities over the years. The city is responsible for 2,285,595 square feet of city building space. Adopting a green building standard, such as LEED, will provide opportunities to incorporate

sustainable development principles and techniques into municipal operations and demonstrate the City's continued commitment to the natural environment, healthy neighborhoods and economic development.

All building projects listed in the City's Adopted CIP, including new construction and major retrofits of all uses, where the total project size is 10,000 square feet or more, are required to achieve or exceed a US Green Building Council LEED Silver Rating, or a comparable rating from a sustainable building program of equal efficacy[20]. By requiring a LEED Silver rating, this captures the inclusion of the voluntary, Energy Star® building programs. Projects will be required to demonstrate how the LEED rating incorporates Energy Star® criteria. The Office of Sustainability (see Recommendation I.1.1) will review all such construction projects to assist staff in determining whether a given project has the potential to serve as demonstration of innovative technologies and develop a checklist outlining the criteria that will have to be met by the project.

I-1.2.a – Application

City construction projects over 10,000 GSF: All projects starting in FY 2007 in any phase of design except for those projects in the 50-75% Construction Documents and Permitting phases must meet the criteria for achieving a LEED Silver Rating by using the rating as a guideline, or by using a comparable rating from a sustainable building program of equal efficacy. Actual certification is not a requirement for projects begun in FY 2007.

All projects starting in FY 2008 must *achieve* a LEED Silver Rating. Certification *is required* for projects begun in FY 2008 and going forward.

I-1.2.b – Implementation of the Recommendation

Phase-in over two years -- The Green Building program and adopted rating system(s) are to be phased in over 2 years, with educational and staff development information and services provided by the Office of Sustainability to agencies and other parties implementing a Green Building project.

Demonstrate compliance with US EPA Energy Star® program—All city projects should be participating in the US EPA Energy Star® program and project teams must demonstrate compliance with the Energy Star® program. The Office of Sustainability will help create a checklist or review for this requirement.

I-1.3 – Minor City Projects

Require Green Building Guidelines for Minor City Projects with a minimum cost of $25,000. All other city sponsored construction projects (i.e. projects not covered by the requirements in I-1.2) of $25,000 or greater cost, including minor retrofits, renovations, replacement or capital improvements are required to follow basic Sustainable Design, Development and Construction (green building) principles and meet specified LEED credit criteria for the project.

[20] The design team for any project may apply to the Office of Sustainability for approval of an alternative rating system. Final approval will be granted by the Office of Sustainability.

First and foremost any project should engage in an integrated design process to establish green goals for the project whether minor or major. This process allows for best possibilities to be considered for the project apart from just the various green guidelines and checklists.

I-1.3.a – Application and Details

Projects that fall under this recommendation will vary considerably so the following green building elements will be implemented as it applies to the specific project. For example a $20,000 roof replacement would be required to evaluate energy efficiency and perhaps improved stormwater management. A review Checklist will be developed by the Office of Sustainability (*see Recommendation I-1.4*) to help project teams understand what sustainable features need to be incorporated into the project. *Please note that the following recommended principles are loosely based on the LEED Rating standard but are much less restrictive.*

General sustainable design, development and construction principles to be followed, dependent on the project type, are as follows:

I. Energy Use – Minimum standard of energy efficiency improvement is 10% over the model energy code or ASHRAE 1999 v90.1 for renovation/rehabilitation work or 15% the model energy code or ASHRAE 1999 v90.1 for new construction. Evaluate project for compliance with the US EPA Energy Star® program and specify only Energy Star® equipment, appliances, roofs and other building elements as listed on the current year for the project's initiation, Energy Star® website.

II. Water Conservation – Use of potable water for domestic purposes, equipment operation, landscape purposes or sewage conveyance shall be minimized. Project team to demonstrate minimum 5% reduction in any potable (city supplied) water usage.

III. Stormwater Management Improvement – Employ technologies and practices that reduce stormwater runoff and/or improve the quality of the runoff through Green Building practices. Project team to demonstrate a 5% reduction in the quantity of runoff based upon peak demand for a 2-year storm.

IV. Sustainable Site Design – Demonstrate that consideration was given to improve energy performance through building orientation, reduce impact to disruption to the site and implement strategies that reduce the Urban Heat Island effect and create a cooler community.

V. Construction Waste Management – Implement construction waste management procedures to help divert at least 10% of project-generated waste from the landfill.

VI. Green Building Materials – Preference shall be given to the following materials, assuming cost, availability and multiple sources are similar
    a. Building materials from regional or local sources, recycled content material, salvage or rapidly renewable materials.

b. Durable, long lasting products and materials that will help reduce the long term operating or use cost

c. Use low VOC[21] paints, carpet, sealant and adhesives in all interior applications

d. Demonstrate a preference was given to low emitting or formaldehyde free composite sheet goods, furniture, room dividers, or other interior millwork and equipment.

VII. LEED Credits – LEED credits must be met to include:

a. EAp2 – Min Energy Efficiency Standard

b. MRc5 – Specifying Regional Materials

c. SSc6 – Storm water Management Standards

d. EQc4 - Interior Finish materials Low VOC

e. WEc3 - Conservation of Potable Water for domestic and equipment use

I-1.3.b – Implementation of the Recommendation

Similar implementation steps will be taken as demonstrated in Recommendation I-1.1 and mostly work through the designated staff Sustainability Coordinators.

Develop Checklist/Review – The Office of Sustainability will develop a checklist review form to assist smaller project teams in determining which criteria applies to their project that will be required for all projects matching the criteria listed above. The Office of Sustainability will be required to sign-off on the completed checklist.

The USGBC Baltimore Regional Chapter, Green Building Initiative and other local and regional green building organizations are willing to offer some support to help implement this program. The Green Building Guidelines will provide staff with the parameters within which to develop projects and the implementation procedures that will serve to insure quality assurance. In so doing, projects will stay within budget and on schedule, preventing increased project costs from change orders. As with other projects of greater magnitude, the Office of Sustainability will provide information and staff development services to those agencies and other project teams partaking in a Green Building project.

I-1.4 – 5% NPV City Funded Projects

Develop Green Building Guidelines for any project that receives a minimum of 5% Net Present Value (NPV) city funding, financing support or other financial development contribution such as tax credits.

The city plays a large role in making all kinds of development possible, and therefore has the responsibility to enhance investment of taxpayers' dollars by requiring better building practices that will improve the performance of projects and reduce operating costs.

[21] Volatile organic chemical

I-1.4.a –Application

Green Building Guidelines (to be developed by the Office of Sustainability) shall include:

- Energy efficiency measures
- Water conservation and quality improvements
- Storm water quality improvements and quantity reduction
- Use of healthy, regional and environmentally preferred building and finish materials construction and demolition waste recycling
- Encourage use of renewable energy
- Implementation of smart and sustainable site development practices
- Encourage selection of the more durable material or technology for implementation

I-1.4.b – Implementation of the Recommendation

The Office of Sustainability will be tasked with developing reasonable standards that cover the following key areas of sustainable practices for a variety of project types. The Task Force further recommends that the Office of Sustainability be responsible for creating a checklist and quick review to determine the level of "green" and which guidelines are most applicable. Then they shall follow up with a review of the project submittals.

Goal 2: Private Sector Incentive Program

The second goal is to encourage green building and sustainable practices by establishing incentive and implementation strategies for privately funded and financed construction and renovation projects. These projects might be large scale or small scale and funded by parties that are for-profit, or not-for-profit. The recommendations listed in this section of the report encourage sustainable private development projects, using LEED Silver or a comparable rating from a sustainable building program of equal efficacy as the baseline standard.

These incentives should be phased in over time and should follow a model of successful programs initiated in other cities (Arlington County, Virginia and New York City have the best programs). Any city program should focus on economic development without sacrificing tax revenues where possible.

In order to provide these recommendations, we worked with the Baltimore Development Corporation to solicit feedback from active members of the Baltimore City development community. They were very clear in indicating that quantifiable financial incentives would provide the greatest influence towards making a decision to initiate a green building project. However, we have also been operating under the framework that our recommendations for private development incentives should be as close to revenue neutral as possible.

This balancing act between providing financial incentives to private developers for building green and not reducing revenues to the city may be difficult to achieve. It is possible to impose green development, but that also has balance problems associated with it. It is important for the city to attract development opportunities and forcing green buildings without providing incentives could have an undesirable negative impact.

Recommendations

I-2.1 – Developer Incentives

Publicize existing incentives, and provide developer incentives for green development. In order to foster green development with positive methods, the City of Baltimore should offer a variety of incentives that could be applied to various scale projects and project types.

I-2.1.a – Application

I. Reduced fees for compliance with certain criteria – Because of the reduced demand on infrastructure, fees should be lowered or eliminated for the areas directly affected. For example, water hookup fees may be lowered when water usage is reduced by 30%, depending on discussions with DPW and other Baltimore City agencies.

II. Education and Outreach– The Office of Sustainability and technical assistance partners will provide developers information, and possibly training, on Green Buildings and Sustainable Development.

III. Create Green Building Fund – A fund would be made available on a grant basis to fund specific features of selected development projects.

IV. Tax Abatements – Provide property tax abatements or tax increment financing (TIFs) for developers that meet green building standards of LEED Silver or higher.

The following incentives have been used by other municipalities and were considered by the Task Force for use in Baltimore. We feel that at this time they are not appropriate for Baltimore. We are including them for future consideration.

I. Density Bonuses – Because green buildings reduce the strain on public infrastructure, it is appropriate to allow developers of green buildings to exceed density restrictions. This is an incentive in certain areas of the city where density restrictions inhibit economic potential for the building owner. A model exists in Arlington County based upon a formula in which the Floor Area Ratio (FAR) is increased based on LEED rating as follows:

- .15 increase allowance for Certified Level
- .25 for LEED Silver
- .35 for LEED Gold and Platinum

II. Expedited review for developers creating LEED buildings – This incentive has already received resistance. Developers did not particularly believe it would reduce the time frame of the permitting process and city officials were not sure it was a feasible approach. However, if this was a program that could be effectively implemented, it would provide incentive to developers.

III. Site Plan Review and Approval Process – The review and approval process will be administered by the Department of Planning, Zoning Enforcement, and Permits and Code Enforcement. The Office of Sustainability will coordinate with these offices to develop a checklist and the protocol for expedited plan review. This was also not perceived as a significant incentive to the development community. It is still worth considering because it will increase awareness of sustainability issues for all parties involved in the process.

I-2.1.b – Implementation of the Recommendation

The Office of Sustainability will need to develop and coordinate the private development green building incentive program. It is important that the program receives support from the Mayor's office, the City Council and various departments within the city that this program will affect. An emphasis should be placed on implementing the incentive programs that will be most appealing to developers, such as density bonuses, fee reductions and tax abatements.

The Office of Sustainability is critical to the success of this program. While the development community does not believe education and outreach is a true incentive, these practices are nonetheless important to implementing successful green building projects. This office can provide assistance and shepherd the early projects through the process, matching appropriate incentive programs, advocating sustainability features and increasing the likelihood of project success.

All incentive programs should have a goal to subsidize the early adopters thereby reducing their risks associated with developing green. The programs can all follow a tapering off model similar to the way the MD Green Building Tax Credit program was established. In that program, funding reached a peak after a predetermined period of time and tapered off until it reached no funding. This is an effective approach because it allows government and private industry to share in some of the risk while nurturing an emerging industry until it is able to sustain itself with the increased demand that this approach will help create.

I-2.2 – Establish Green Zones

Another approach to hasten the implementation of viable green building projects is to create green zones that require private buildings to be developed to LEED Silver (or greater) standards. This should be coordinated with the City Planning Department's comprehensive plan and zoning overlay project being created right now.

We have been communicating with the Planning Department and it is our recommendation that we create a green zone immediately based on progress that is already being made with a section of land surrounding the area known as Middle Branch. In the first year we should start with the Middle Branch as well as one of the four watersheds in Baltimore City, i.e. Gwynns Falls and/or Herring Run, where significant sustainable activity is already underway. The Middle Branch area will capitalize on rapid growth and higher economic investment and a Green Zone in the watershed areas will attract sustainable development to these residential areas.

I-2.2.a – Application

The Green Zone program will follow the same guidelines as Goal 2, Recommendation 1.2 except it will apply to all development within the stated green zones.

I-2.2.b – Implementation of the Recommendation

We create our first Green Zone in the waterfront area immediately surrounding the Middle Branch or the area being called "Harbor West." This is in alignment with the goals of the Planning Department and the BDC who wish to restore this area to take advantage of the urban/natural setting that makes the location unique. Several projects are already underway that make it a natural starting point for our first Green Zone. The exact area of this Green Zone will be created by the Planning Department and enforced in conjunction with the zoning overlay project currently underway.

The BDC recently released an RFQ (Request for Qualifications) for a property called Gateway South that requires developers to achieve a LEED certification level for all buildings developed on the 11-acre offering. Extra consideration will be given to developers that commit to a higher level (i.e. LEED Silver).

The National Aquarium is planning to develop a site on Port Covington with multiple buildings intended to achieve LEED certification at some level. Henrietta Development Corporation is developing a site in Westport and has made preliminary commitments to the planning department regarding green building development.

There are also some natural and manmade amenities to the area and the waterfront, and it is convenient to downtown. There is a belief that mixed use developments could be financially successful. The recently completed 14 mile Gwynns Falls Trail creates integration with nature that is unusual in such an urban setting.

Goal 3: Develop City-wide Green and Healthy Housing Program

The third goal is to focus on the development of a Green and Healthy Housing Program that will eventually affect all housing in Baltimore City. This goal seeks to have the Office of Sustainability develop the program in conjunction with the Department of Housing and Community Development. We recommend that this program focus on affordable and disinvested neighborhoods first and work with existing programs through the Department of Housing and Community Development (DHCD) in conjunction with the Office of Sustainability. DHCD already has roof replacement, weatherization and HVAC programs throughout the city. These programs are currently operating on a limited basis and could be expanded.

Most of the housing in Baltimore city is the classic rowhouse: an attached, brick, 2-or-3-story, single-family dwelling, constructed from the early 1700's to the present day. The majority of the rowhouses were constructed prior to 1959 and are often in good enough condition to renovate, make energy efficient, weatherize and bring up to modern standards while incorporating affordable green strategies and conservation measures.

There are over 300,000 housing units in Baltimore City, with more than 50% considered owner-occupied. Unfortunately over 16% are listed as vacant, with many in need of major structural repair or only suitable for teardown. Affordability, educating

homeowners and builders, and making the technology or building practices easily accessible will be key to a successful Green and Healthy Housing Program.

Recommendations

I -3.1 Stabilize/Improve Housing Stock and Adjacent Environment

I-3.1.a – Application

Creating a green and healthy housing program that can be applied to all housing in Baltimore City shall contain the following components:

I. Improvements/renovations to existing housing stock – develop programs that will stabilize, improve and rehabilitate the existing housing in a sustainable, healthy and energy efficient manner using green building practices and materials.
   - Roof repair and stabilization, institute city wide Cool Roof program
   - Weatherization and Energy Assessment program; develop joint public-private weatherization partnership for city owned and private home weatherization
   - Develop program or guidelines for home energy improvements and use of natural ventilation, energy efficient equipment and appliance selection, window replacements
   - Provide education and training to homeowners, contractors and officials on how-to-do green renovations
   - Create Healthy Indoor Environments through the following:
     - Remediation of lead and asbestos hazards
     - Mitigation of asthma triggers
     - IPM (integrated pest management)
     - Air quality issues (CO, radon, etc.)
     - Minimize use of synthetic materials (particularly carcinogenic materials such as polyvinylchloride),
     - Safety issues (emphasizing children and the elderly)
     - Desire for sufficient air changes
     - Minimize dust sinks and create cleanable surfaces
     - Control moisture to minimize mold growth
     - Occupant education in areas such as healthy home maintenance, secondhand smoke, etc.

II. Deconstruction / Reuse of housing stock – develop program for effective and economical deconstruction of housing stock that is beyond rehabilitation. Recycling of demolition debris instead of land filling will save the city and keep existing city landfills in use longer.
   - Job creation opportunities are strong if a system for recycling debris and waste is created through sorting and separating, regarding of lumber, and resale of material or reuse such as for rubble.
   - Building component restoration -- Restore existing building components wherever practical. Although this work is more labor-intensive and, in some cases, may be more expensive up front, it will usually be far cheaper using life cycle costing as criteria. Labor-intensive work also fulfills another requirement

which is to maximize the number all local jobs created and re-circulate local dollars. It also enhances historic preservation efforts.

III. New construction of housing stock – Create incentives and guidelines, select Residential Green Building Rating system for implementation on new residential single family or duplex type housing. Portland, Oregon and Seattle Washington both have model green residential programs and guidelines, as does the Enterprise Foundation through Green Communities.

IV. Promote the use of Energy Efficient Mortgages (EEMs) and Location Efficient Mortgages (LEMs) for purchase of new homes. These are currently in use nationwide. Additional information on green loans can be found through Fannie Mae, Freddie Mac and the Federal Housing Administration.

I-3.1.b – Implementation of the Recommendation

The Office of Sustainability, in concert with citizen groups and the Sustainable Baltimore Committee, will be charged with developing the strategies, guidelines and selecting appropriate rating systems to be used. The intent of this recommendation is to, over time, effectively implement the Green and Healthy Housing Program for all housing in the city, both public sector and private development. We recommend selecting several public and (if possible) private pilot projects to test the guidelines, apply an appropriate green rating, evaluate green and healthy measures incorporated and to track budgets, costs and benefits or savings.

PHASE II – SUSTAINABLE COMMUNITIES

The following goals, for this report are presented in outline format with the intention of the Task Force to generate specific recommendations and continue working on Phase II, starting in mid-year of 2006. Phase II addresses the larger tasks of creating a truly sustainable city.

The Task Force recommends that the City of Baltimore create a "Sustainable Baltimore Program" whereby through a host of policies, Sustainable Guidelines and Standards can be demonstrated in communities all across the city. We believe that such a program similar to the one implemented in Portland, Oregon can have significant impact on the long-term viability and livability of our city. Through sustainable policy, actions and economics we hope to build a better Baltimore for all of our citizens, visitors and workers. Benefits may include, but may not be limited to:

- Energy savings - both public and private, reduction in emissions, development of "Cool Communities"
- Environmental health – Clean and Healthy Water, Air, homes, workplaces, streets and public spaces
- Economic growth - new local jobs and commerce, keep local dollars local!
- Enhanced quality of life in Baltimore City and the region through preservation and expansion of existing parks, open space and natural areas found within the city

Summary of the Recommendations

II-1 – Sustainable Site Issues

Decisions made concerning site selection for projects, preserving open space and orientation of buildings on a site will affect how "green" the city can become. We recommend focusing on the following:

II-1.1 Open Space /Vegetation: Provide quality space; use native, low-maintenance landscaping species; support community, agriculture, parks and ecosystems.

II-1.2 Site orientation of buildings: Consider passive solar strategies in building design and utilize as many "freebies" of solar energy, natural ventilation that the site, daylight access as the site will afford

II-2 – Water Conservation, Use and Management

Water quality and preservation of a safe and adequate water supply will probably become more important in the coming decades across the globe. In addition, due to our proximity to the Chesapeake Bay, management of the quantity and quality of our stormwater run-off will become more critical. Phase II would also include a plan to evaluate and develop recommendations for the following:

II-2.1 Stormwater Management: Manage on-site; minimize impervious surfaces; reduce contaminants; recharge groundwater, capture rainwater for use. May include

green roof program, permeable paving materials in designated areas, rainwater harvesting and/or bio-retention (above ground) stormwater management.

II-2.2 Water Use: Reduce potable water use and demand on-site and in-building; practice water conservation, recycling, and harvesting rainwater.

II-2.3 "Waste" Water Management: Reduce amount of "waste" water; recycle "gray" water; treat naturally.

II-3 – Address Green Transportation Issues

Research and evaluate citywide transportation issues, city owned fleet vehicles, to develop integrated strategies for "greening" public transportation within Baltimore City. This will require interface with regional governments, MTA and other transit organizations. Develop recommendations for private sector green transportation strategies.

II-4 – Energy and Clean Air

Citywide energy conservation and renewable energy generation will not only improve Baltimore's energy security picture but also improve regional air quality through lower emissions due to less fossil fuel burning.

II-4.1 Energy Conservation: Maximize energy performance; reduce operating costs; reduce pollution; conserve resources; enhance comfort.

II-4.2 Energy Generation: Reduce demand; use passive / active systems; generate or purchase renewable energy.

II-4.3 Air Quality: Reduce heat island effect and contributions to global warming.

II-5 – Material Resource Conservation

Development of green manufacturing and substantive recycling programs for all kinds of waste products will help generate jobs and lower the cost of materials and disposal in the City.

II-5.1 Rethink, Reduce, Reuse and Recycle materials: Create efficient, effective spaces; optimize building dimensions; use deconstructed; salvaged; recycled content; recyclable materials.

II-5.2 Use Natural, Adaptable, and Durable Materials: Use rapidly renewing; sustainably harvested; minimally processed; non-toxic; and low emitting materials; plan for flexibility and future use; use durable- long life products.

II-5.3 Use local-Regional Materials: Support local economy and reduce transporting costs.

II-5.4 "**Refuse Disposal"**: Minimize and divert "waste" from landfills by redirecting materials; deconstruct; recycle.

II-6 – Sustainable Development Communities

II-6.1 Generate economic opportunities through the Green and Healthy Housing Program.

- Greening the existing housing stock can potentially generate many new semi-skilled to skilled jobs. We can encourage local job training and business development and purchase local materials and services. Generating a local green industry and green service sector will help to create a sustainable local community and keep more dollars in the local economy.

- The development of a community-based and controlled residential maintenance program offers a cost effective and green way to sustain housing. The establishment of local maintenance programs also generates stable, well-paying and satisfying career opportunities for neighborhood residents.

- Baltimore City has more underutilized industrial space than any city in the United States. Maintaining these buildings as light industrial space is critical to creating a stable economy. This is of particular urgency for maintaining the availability of blue-collar production jobs. Low and moderate income communities particularly benefit from these jobs, the loss of which widens the income gap between these citizens and wealthier citizens. Inclusive zoning offers one potential solution.

- There are opportunities to start training programs for green rehabilitation work--preferably through the public school and community college systems. Additionally, green industries would be attracted to the city to support green renovation projects and fulfill need for contractors' and service companies' installation and assessment. Publicly owned housing renovations may need substantial subsidizing initially, but could generate demand for qualified applicants to "Welfare-to-Work" type programs.

- By establishing municipal procurement standards for local or green materials, services and equipment, the city will promote the market for green renovations.

- Growing a local green economy keeps jobs and dollars in Baltimore City and could be tied to home-ownership and subsidized rent programs.

II- 6.2 Engage the BCPSS in creating healthy, positive, and productive learning environments for students by incorporating Green Building standards and ideals.

- Neighborhood development could incorporate schools as the centerpiece of revitalization and greening projects. By improving our school facilities and environment, projects could potentially draw new residents with children.

- Local or national developers or other professionals in the green building industry could collaborate with BCPSS and innovation schools to develop special educational events, or curricula to teach students about the concepts and practices of green building and sustainable development.

APPENDICES

Appendix A – Resolution

Baltimore City Council Resolution 05-0035R, "The Baltimore City Green Building Council"

INTRODUCTORY*

CITY OF BALTIMORE
COUNCIL BILL 05-0035R
(Resolution)

Introduced by: Councilmember Kraft

A Council Resolution concerning

The Baltimore City Green Building Task Force

FOR the purpose of establishing the Baltimore City Green Building Task Force, to study the application of high-performance, sustainable building guidelines and standards to public and private construction and renovation projects.

Recitals

Baltimore City's readiness for high-performance building could assist in moving the city towards sustainable development and environmental responsibility. Green buildings not only decrease negative effects on the environment; they also generate substantial cost savings for building owners and tenants, reduce dependency on imported energy, and enhance worker health and productivity.

LEED™ (Leadership in Energy and Environmental Design) Green Building Rating System, developed by the U.S. Green Building Council (USGBC), is the only nationally recognized green building standard. LEED™ evaluates the performance of buildings from a "whole building" perspective, over the course of a building's lifecycle, which provides a definitive standard for what constitutes a green building. The LEED™ Green Building Rating System is a feature-oriented rating system where credits are earned for satisfying specified green building criteria. Certified, Silver, Gold, and Platinum levels of green building certification are awarded based on the total credits earned. Federal agencies, state and local governments, and private companies have adopted the LEED™ standard as the guideline for sustainable building.

Many local jurisdictions in the U.S. have implemented ordinances that require new public projects to achieve a LEED™ Silver certification from the USGBC. Under these laws, municipal buildings are required to follow green building design principles, helping

to create healthy workplaces, increase energy productivity, protect the environment and save millions in future operational costs for public buildings.

In the same way, the development of green initiatives for Baltimore City can enhance economic development, improve public health and equitably address housing, energy use and water quality issues. By promoting new green buildings and development, and "greening" Baltimore City's existing buildings, the City stands to stimulate new business growth and job creation through increased demand for green building components and expertise. The exploration of green building solutions will lessen the environmental impacts of new development and reduce demand on the city's electrical energy grid.

Each of Baltimore City's most pressing problems, from crime to education, could be addressed in a more cost effective and healthy way through sustainable design and development. Baltimore City has the potential to become a model green city with a unique image by tying sustainable design to the many institutions and programs already established that could easily form a foundation for a "green" City, based on its good track record of preservation and restoration, and adaptive re-use which are also good marriages with sustainability.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF BALTIMORE, That the Baltimore City Green Building Task Force be established to study the application of high-performance, sustainable building guidelines and standards to public and private construction and renovation projects.

AND BE IT FURTHER RESOLVED, That the Task Force members include the following representatives or their respective designees:

- Councilman James B. Kraft
- Donald Small, Zoning Administrator
- Otis Rolley III, Director of Planning
- Dr. Peter Beilensen, Department of Health
- Paul Graziano, Department of Housing and Community Development
- George Winfield, Department of Public Works
- Baltimore Development Corporation
- The Mayor's Office of Community Investment
- The Mayor's Office of Neighborhoods
- Peter Doo, Baltimore City Green Building Council
- David Pratt, Baltimore City Green Building Council
- Kim Schaefer, Baltimore City Green Building Council
- Marilyn Gould, Baltimore City Green Building Council
- Enterprise Foundation
- Constellation Energy
- Members of the Private Development Community in Baltimore City
- Members of the Baltimore City Neighborhood Associations
- Preservation Society
- Baltimore Heritage
- Commission for Historical and Architectural Preservation

AND BE IT FURTHER RESOLVED, That the mission of the Task Force will include, but not be limited to, evaluating and making recommendations regarding the following aspects of adopting LEED™ standards:

- Goals and benchmarks for implementing green building guidelines and standards
- Applicability to new public and private construction projects
- Applicability to public and private renovation projects
- Fiscal requirements and constraints
- Incentives: fiscal and environmental benefits
- Employment: locating green expertise in City administration

AND BE IT FURTHER RESOLVED, That the Baltimore City Green Building Task Force will compile its findings and recommendations in a written report and present its findings and recommendations to the citizens of Baltimore and the Baltimore City Council on or before December 31, 2005.

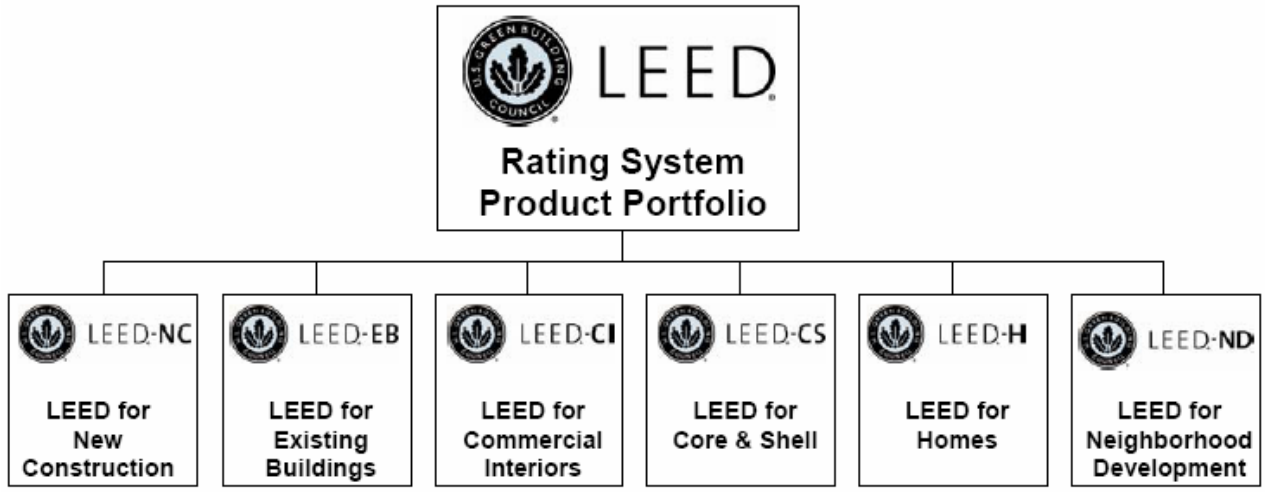
Appendix B – Glossary of Terms

Term	Definition
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BDC	Baltimore Development Corporation – A 501©(3) corporation contracted with the City of Baltimore to provide economic development services.
BMP	Best Management Practice
CIP	Capital Improvement Program
density bonuses	Allowance of higher density development than would normally be permitted on a specific project in return for providing design and construction features that meet or exceed certain specific performance goals
DHCD	Department of Housing and Community Development (of Baltimore City)
Energy Star®	Federal rating system describing the energy efficiency of appliances
expedited review	Speeding or the permit review process of green buildings using checklists and guidelines to make verification of the green features of a design simpler
GBG	Green Building Guidelines (see below)
GBTF	Baltimore City Green Building Task Force
green building	A philosophy of design and construction that integrates natural resources more effectively, preserves and restores the natural and human resource base while creating healthier, more efficient 'high-performance' structures, homes, and communities.
Green Building Guidelines	An official set of Baltimore City standards for design and construction of buildings
heat island	The phenomenon where urban areas, with their greater density of heat sources, sunlight-absorbing surfaces, and thermal mass tend to be much warmer than the surrounding, less urban areas
impervious surfaces	Materials covering the soil that eliminate the absorption of rain water by the soils beneath them
LEED	LEED is used in two ways. It is an acronym for Leadership in Energy and Environmental Design. It is also used to refer to the LEED Green Building Rating System® developed by the USGBC which is a is a point-based system Points are given for various features, such as using less energy and water, using locally harvested and manufactured materials, and providing daylight and views.
NPDES	National Pollutant Discharge Elimination System
NPV	Net Present Value
Office of Sustainability	One of the primary recommendations of this report. This is a proposed office within the City of Baltimore

Term	Definition
	government to design, develop and administer the Sustainable Baltimore Initiative
OoS	Office of Sustainability
permeable surfaces	Materials covering the soil that permit partial or complete absorption of rain water into the soils beneath them
PV	Photovoltaic – See solar photovoltaic
solar photovoltaic	Generally refers to panels (often 4' x 8') that are made up of a collection of individual solar cells. These cells convert sunlight into direct current electricity. They use silicon as a film under a glass plate, which is then wired with a high efficiency material, such as copper, into a converter for direct use or into batteries for future use.
USGBC	U. S. Green Building Council - It is a coalition of leaders from across the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work. Council members work together to develop LEED products and resources, the Greenbuild annual International Conference and Expo, policy guidance, and educational and marketing tools that support the adoption of sustainable building.

Appendix C – LEED Rating Criteria

The USGBC has several rating systems for different types of projects:



The project check lists for LEED-NC is included here. For more detailed description of each point of criteria, or other LEED project types see www.usgbc.org.

LEED-NC Version 2.2 Registered Project Checklist

<< enter project name >>
<< enter city, state, other details >>

Yes	?	No			
			Sustainable Sites		**14** Points
Y			Prereq 1	Construction Activity Pollution Prevention	Required
			Credit 1	Site Selection	1
			Credit 2	Development Density & Community Connectivity	1
			Credit 3	Brownfield Redevelopment	1
			Credit 4.1	Alternative Transportation, Public Transportation Access	1
			Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1
			Credit 4.3	Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles	1
			Credit 4.4	Alternative Transportation, Parking Capacity	1
			Credit 5.1	Site Development, Protect of Restore Habitat	1
			Credit 5.2	Site Development, Maximize Open Space	1
			Credit 6.1	Stormwater Design, Quantity Control	1
			Credit 6.2	Stormwater Design, Quality Control	1
			Credit 7.1	Heat Island Effect, Non-Roof	1
			Credit 7.2	Heat Island Effect, Roof	1
			Credit 8	Light Pollution Reduction	1

Yes	?	No			
			Water Efficiency		**5** Points
			Credit 1.1	Water Efficient Landscaping, Reduce by 50%	1
			Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	1
			Credit 2	Innovative Wastewater Technologies	1
			Credit 3.1	Water Use Reduction, 20% Reduction	1
			Credit 3.2	Water Use Reduction, 30% Reduction	1

Yes	?	No			
			Energy & Atmosphere		**17** Points
Y			Prereq 1	Fundamental Commissioning of the Building Energy Systems	Required
Y			Prereq 2	Minimum Energy Performance	Required
Y			Prereq 3	Fundamental Refrigerant Management	Required
			Credit 1	Optimize Energy Performance	1 to 10
			Credit 2	On-Site Renewable Energy	1 to 3
			Credit 3	Enhanced Commissioning	1
			Credit 4	Enhanced Refrigerant Management	1
			Credit 5	Measurement & Verification	1
			Credit 6	Green Power	1

Yes	?	No			
			Materials & Resources		**13** Points
Y			Prereq 1	Storage & Collection of Recyclables	Required
			Credit 1.1	Building Reuse, Maintain 75% of Existing Walls, Floors & Roof	1
			Credit 1.2	Building Reuse, Maintain 100% of Existing Walls, Floors & Roof	1
			Credit 1.3	Building Reuse, Maintain 50% of Interior Non-Structural Elements	1
			Credit 2.1	Construction Waste Management, Divert 50% from Disposal	1
			Credit 2.2	Construction Waste Management, Divert 75% from Disposal	1
			Credit 3.1	Materials Reuse, 5%	1
			Credit 3.2	Materials Reuse,10%	1
			Credit 4.1	Recycled Content, 10% (post-consumer + ½ pre-consumer)	1
			Credit 4.2	Recycled Content, 20% (post-consumer + ½ pre-consumer)	1
			Credit 5.1	Regional Materials, 10% Extracted, Processed & Manufactured Regionally	1
			Credit 5.2	Regional Materials, 20% Extracted, Processed & Manufactured Regionally	1
			Credit 6	Rapidly Renewable Materials	1
			Credit 7	Certified Wood	1

Yes	?	No			
			Indoor Environmental Quality		**15** Points
Y			Prereq 1	Minimum IAQ Performance	Required
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required
			Credit 1	Outdoor Air Delivery Monitoring	1
			Credit 2	Increased Ventilation	1
			Credit 3.1	Construction IAQ Management Plan, During Construction	1
			Credit 3.2	Construction IAQ Management Plan, Before Occupancy	1
			Credit 4.1	Low-Emitting Materials, Adhesives & Sealants	1
			Credit 4.2	Low-Emitting Materials, Paints & Coatings	1
			Credit 4.3	Low-Emitting Materials, Carpet Systems	1
			Credit 4.4	Low-Emitting Materials, Composite Wood & Agrifiber Products	1
			Credit 5	Indoor Chemical & Pollutant Source Control	1
			Credit 6.1	Controllability of Systems, Lighting	1
			Credit 6.2	Controllability of Systems, Thermal Comfort	1
			Credit 7.1	Thermal Comfort, Design	1
			Credit 7.2	Thermal Comfort, Verification	1
			Credit 8.1	Daylight & Views, Daylight 75% of Spaces	1
			Credit 8.2	Daylight & Views, Views for 90% of Spaces	1

Yes	?	No			
			Innovation & Design Process		**5** Points
			Credit 1.1	Innovation in Design: Provide Specific Title	1
			Credit 1.2	Innovation in Design: Provide Specific Title	1
			Credit 1.3	Innovation in Design: Provide Specific Title	1
			Credit 1.4	Innovation in Design: Provide Specific Title	1
			Credit 2	LEED® Accredited Professional	1

Yes	?	No		
			Project Totals (pre-certification estimates)	**69** Points

Certified 26-32 points **Silver** 33-38 points **Gold** 39-51 points **Platinum** 52-69 points

Appendix D – LEED Fee Schedule

The following table appears on the USGBC website and summarizes select fees for different projects.

FEE SUMMARY FOR NC, EB & CI

As of November 15, 2005

Note: NC v2.1 registration available until December 31, 2005. NC v2.2 registration available now.

Registration Fees

Charges	Fixed Rate
Members	$450.00
Non-Members	$600.00

Note: All fees are subject to change. Sorry, no refunds.

Certification Fees*

	Less than 50,000 Square Feet	50,000 - 500,000 Square Feet	More than 500,000 Square Feet
LEED-NC & LEED-CI	Fixed Rate	Based on Sq. Ft.	Fixed Rate
Design Review			
Members	$1,250.00	$0.025/Square Ft.	$12,500.00
Non-Members	$1,500.00	$0.03/Square Ft.	$15,000.00
Construction Review			
Members	$500.00	$0.01/Square Ft.	$5,000.00
Non-Members	$750.00	$0.015/Square Ft.	$7,500.00
LEED-NC & LEED-CI	Fixed Rate	Based on Sq. Ft.	Fixed Rate
Combined Design & Construction Review			
Members	$1,750.00	$0.035/Square Ft.	$17,500.00
Non-Members	$2,250.00	$0.045/Square Ft.	$22,500.00
LEED-EB	Fixed Rate	Based on Sq. Ft.	Fixed Rate
Combined Design & Construction Review			
Members	$1,250.00	$0.025/Square Ft.	$12,500.00
Non-Members	$1,500.00	$0.030/Square Ft.	$15,000.00

Note: All fees are subject to change. Sorry, no refunds.

*Certification fee for projects registered under NC Version 2.0 (prior to November 15, 2002) is $1200 (members) or $1500 (non-members).

Certification fee for projects registered under NC Version 2.1 from November 15, 2002, to November 15, 2005 NOT using LEED Online. Certification fee for projects registered under EB and CI v2.0 before November 15, 2005, NOT using LEED Online. These fees are:

	Less than 75,000 Square Feet	75,000 - 300,000 Square Feet	More than 300,000 Square Feet
Charges	Fixed Rate	Based on Sq. Ft.	Fixed Rate
Certification			
Members	$1,500.00	$0.02/Square Ft.	$6,000.00

Non-Members	$1,875.00	$0.025/Square Ft.	$7,500.00

Note: All fees are subject to change. Sorry, no refunds.

Projects that registered before November 15, 2005, that wish to use *LEED Online* are subject to the new certification fee structure and a possible credit. For more information please contact us at *leedinfo@usgbc.org*.

For **LEED-CS** registrations, please contact leedinfo@usgbc.org for instructions.

All fees are subject to change. Sorry, no refunds.